

**IN THE CLAIMS:**

Please re-write the claims as follows:

1. (Currently Amended) A method for establishing identity in a file system, comprising:

receiving, from a client, a first Network File System (NFS) operation file request concerning an indicated file from a client, the first NFS operation request received by a proxy;

forwarding the first NFS operation request from the proxy to be received by a file server;

returning a NFS file handle reply associated with the first NFS operation file request from the file server to the proxy in response to the file server receiving the first NFS operation from the proxy;

inserting, by the proxy, metadata into a the NFS file handle in response to receiving the NFS file handle from the file server, wherein the metadata is an encryption key; and

sending, by the proxy in response to receiving the NFS file handle from the file server, the NFS file handle with the metadata inserted in the NFS file handle to the client as a reply to the first NFS operation; and

using, by the client, the metadata and the NFS file handle in a second NFS operation to be used in further requests to identify the client and the indicated file.

2. (Currently Amended) The method of Claim 1, further comprising: whereby

—using the metadata in the NFS file handles eliminates for any of eliminating a need for the proxy to generate additional requests to the file server to establish file identity, and for completing client requests.

3. (Previously Presented) The method of Claim 1, further comprising:

encoding metadata in a form of a session key into the file handle, the session key expiring after a predetermined amount of time.

1 4. (Previously Presented) The method of Claim 1, further comprising:  
2 using an NFS file system as the file system.

1 5. (Previously Presented) The method of Claim 1, further comprising:  
2 using a stateless protocol by the file system.

1 6-29. (Cancelled).

1 30. (Currently Amended) The method of claim 1, further comprising:  
2 receiving, from the client, a second ~~file request~~NFS operation by the proxy, the  
3 second ~~NFS operation~~file request ~~comprising including~~ the metadata in a further NFS file  
4 ~~handle sent with the second request~~NFS operation;  
5 identifying, in response to the metadata, the client as having a permission to  
6 submit the second ~~file request~~NFS operation;  
7 sending the second ~~NFS operation~~file request to the file server and not sending  
8 the metadata with the second NFS file handle to the file server; and  
9 receiving by the proxy ~~the a~~ further NFS reply from the file server, and sending  
10 by the proxy the further NFS reply to the client.

1 31. (Previously Presented) A method for establishing identity in a file system,  
2 comprising:  
3 receiving a first file request concerning an indicated file from a client, the first file  
4 request received by a proxy;  
5 forwarding the first file request from the proxy to a file server;  
6 returning a reply associated with the first file request from the file server to the  
7 proxy, wherein the reply includes a file handle associated with the indicated file;  
8 inserting, by the proxy, metadata into the file handle;  
9 sending, by the proxy, the file handle with the metadata inserted in the file handle  
10 to the client, the metadata to be used in further requests to identify the client as having a  
11 permission to access the indicated file;

receiving, from the client, a second file request by the proxy, the second file request including the metadata in a second file handle sent with the second file request; identifying, in response to the metadata, that the client has the permission to submit the second file request; sending the second file request to the file server and not sending the metadata with the second file handle to the file server; and receiving by the proxy a second reply from the file server, and sending by the proxy the second reply to the client.

32. (Currently Amended) An apparatus to establish identity in a file system, comprising:

a proxy configured to receive a first Network File System (NFS) operation file request concerning an indicated file sent by a client to the file system, the proxy further configured to forward the first NFS operation request to be received by a file server; the file server configured to return a NFS file handle reply associated with the first NFS operation file request to the proxy in response to the file server receiving the first NFS operation from the proxy, wherein the reply includes a file handle; the proxy further configured to insert metadata into the NFS file handle in response to receiving the NFS file handle from the file server, wherein the metadata is an encryption key; and the proxy further configured to send the NFS file handle with the metadata inserted in the NFS file handle to the client as a reply to the first NFS operation, the metadata and the NFS file handle to be used in a second NFS operation to be used in further requests to identify the client and the indicated file.

33. (Currently Amended) The apparatus as in claim 32, further comprising:

the proxy further configured to receive, by the client, a second NFS operation file request, the second NFS operation file request comprising to include the metadata in the second NFS file handle sent with the second NFS operation request;

5           the proxy to identify, in response to the metadata, the client as having a  
6      permission to submit the second ~~file request~~ NFS operation;  
7           the proxy to send the second NFS operation ~~file request~~ to the file server and not  
8      to send the metadata with the second NFS file handle to the file server; and  
9           the proxy to receive a second NFS reply from the file server, and the proxy to  
10     send the second NFS reply to the client.

1     34. (Currently Amended) The apparatus of Claim 32, further comprising:  
2         the proxy to use the metadata in the NFS file handle received from the client to  
3     eliminate a need for additional communication with the file server to establish file  
4     identity.

1     35. (Currently Amended) The apparatus of Claim 32, further comprising:  
2         the proxy to encode the metadata in a form of a session key into the NFS file  
3     handle, the session key expiring after a predetermined amount of time.

1     36. (Previously Presented) The apparatus of Claim 32, further comprising:  
2         an NFS file system used as the file system.

1     37. (Previously Presented) The apparatus of Claim 32, further comprising:  
2         a stateless protocol used by the file system.

1     38. (Currently Amended) A non-volatile memory executed on a computer, comprising:  
2         ~~said the~~ non-volatile memory containing procedures for execution on the  
3     computer for a method of establishing identity in a file system, the method having the  
4     steps of,  
5         receiving, from a client, a first Network File System (NFS) operation ~~file request~~  
6     concerning an indicated file ~~from a client, the first NFS operation~~ request received by a  
7     proxy;

forwarding the first NFS operation request from the proxy to be received by a file  
server;

returning a NFS file handle reply associated with the first NFS operation file  
request from the file server to the proxy in response to the file server receiving the first  
NFS operation from the proxy; wherein the reply includes a file handle associated with  
the indicated file;

inserting, by the proxy, metadata into the NFS file handle in response to receiving  
the NFS file handle from the file server, wherein the metadata is an encryption key; and

sending, by the proxy in response to receiving the NFS file handle from the file  
server, the NFS file handle with the metadata inserted in the NFS file handle to the client  
as a reply to the first NFS operation; and

using, by the client, the metadata and the NFS file handle in a second NFS  
operation to be used in further requests to identify the client and the indicated file.

39. (Previously Presented) A method for establishing identity in a file system,  
comprising:

receiving a first file request concerning an indicated file from a client, the first file  
request received by a proxy;

forwarding the first file request from the proxy to a file server;

granting a permission for the request to be acted upon by the file system in  
response to a predetermined protocol;

returning a reply associated with the first file request from the file server to the  
proxy, wherein the reply includes a file handle associated with the indicated file;

inserting, by the proxy, a session key into the file handle; and

sending, by the proxy, the file handle with the session key inserted in the file  
handle to the client, the session key to be used in further requests to identify the client  
and the indicated file.

40. (Currently Amended) The ~~method~~ non-volatile memory of Claim 38 according to  
claim 39, further comprising:

receiving, from the client, a second NFS operation~~file request~~ by the proxy, the second NFS operation~~file request~~ ~~comprising including~~ ~~at~~ the session key in a second NFS file handle sent with the second NFS operation~~file request~~;

identifying, in response to the session key, that the client has the permission to submit the second NFS operation~~file request~~;

sending the second NFS operation ~~file request~~ to the file server and not sending the session key with the second NFS file handle to the file server; and

receiving by the proxy a second NFS reply from the file server, and sending by the proxy the second NFS reply to the client.

41. (Currently Amended) The non-volatile memory of Claim 40~~method according to claim 39~~, further comprising:

causing the session key to expire after a selected amount of time.

42. (Currently Amended) The non-volatile memory of Claim 40~~method according to claim 39~~, further comprising:

causing the session key to expire after a selected amount of usage.

43. (Currently Amended) The non-volatile memory of Claim 38~~method according to claim 39~~, further comprising:

using a NFS file server as the file server~~protocol as the predetermined protocol~~.

44. (Currently Amended) The non-volatile memory of Claim 38~~method according to claim 43~~, further comprising:

using ~~as the predetermined protocol~~ a two way communication exchange between the proxy and the file server.

45. (Previously Presented) An apparatus to establish identity in a file system, comprising:

3 a proxy to receive a file request sent by a client to the file system, the proxy to  
4 forward the request to a file server;  
5 the file server to return a reply associated with the file request to the proxy,  
6 wherein the reply includes a file handle;  
7 the proxy to insert a session key into the file handle; and  
8 the proxy to send the file handle with the session key inserted in the file handle to  
9 the client, the session key to be used in further requests to identify the client and the  
10 indicated file.

1 46. (Previously Presented) The apparatus as in claim 45, further comprising:

2 the proxy to receive, by the client, a second file request, the second file request to  
3 include the session key in a further file handle sent with the second request;  
4 the proxy to identify, in response to the session key, the client as having a  
5 permission to submit the another file request;  
6 the proxy to send the second request to the file server and not to send the session  
7 key with the second file handle to the file server; and  
8 the proxy to receive a further reply from the file server, and the proxy to send the  
9 further reply to the client.

1 47. (Previously Presented) The apparatus of Claim 45, further comprising:

2 the proxy to use the metadata in the file handle received from the client to  
3 eliminate a need for additional communication with the file server to establish file  
4 identity.

1 48. (Previously Presented) The apparatus of Claim 45, further comprising:

2 the proxy to encode the metadata in a form of a session key into the file handle,  
3 the session key expiring after a predetermined amount of time.

1 49. (Previously Presented) The apparatus of Claim 45, further comprising:

2 an NFS file system used as the file system.

1 50. (Previously Presented) The apparatus of Claim 45, further comprising:  
2 a stateless protocol used by the file system.

1 51. (Previously Presented) An apparatus to establish identity in a file system,  
2 comprising:  
3 a proxy configured to receive a first file request sent by a client to the file system,  
4 the proxy further configured to forward the first file request to a file server;  
5 the file server configured to return a reply associated with the first file request to  
6 the proxy;  
7 the proxy further configured to insert a session key into a file handle;  
8 the proxy further configured to send the file handle with the session key inserted  
9 in the file handle to the client, the session key configured to be used in a second file  
10 request to identify the client and the indicated file;  
11 the proxy further configured to receive, by the client, a second file request, the  
12 second file request configured to include the session key in a second file handle sent with  
13 the second file request;  
14 the proxy further configured to identify, in response to the session key, the client  
15 as having a permission to submit the second file request;  
16 the proxy further configured to send the second file request to the file server and  
17 not to send the session key with the second file handle to the file server; and  
18 the proxy further configured to receive a second reply from the file server, and the  
19 proxy further configured to send the second reply to the client.

1 52. (Previously Presented) A method for establishing identity in a file system,  
2 comprising:  
3 receiving a first file request concerning an indicated file from a client, the first file  
4 request received by a proxy;  
5 forwarding the first file request from the proxy to a file server;  
6 determining that the client has a permission to have the request acted upon by the  
7 file system in response to a predetermined protocol;



8           returning a reply associated with the first file request from the file server to the  
9   proxy, wherein the reply includes a file handle associated with the indicated file;  
10          inserting, by the proxy, a cryptographic information into the file handle;  
11          sending, by the proxy, the file handle with the cryptographic information inserted  
12   in the file handle to the client, the cryptographic information to be used in one or more  
13   requests to identify the client and the indicated file.

1   53. (Previously Presented) The method according to claim 52, further comprising:

2           receiving, by the client, a second file request by the proxy, the second file request  
3   including the cryptographic information in a second file handle sent with the second file  
4   request;

5           identifying, in response to the cryptographic information, that the client has the  
6   permission to submit the second file request;

7           sending the second file request to the file server and not sending the cryptographic  
8   information with the second file handle to the file server; and

9           receiving by the proxy a second reply from the file server, and sending by the  
10   proxy the second reply to the client.

1   54. (Previously Presented) The method according to claim 52, further comprising:

2           causing the cryptographic information to expire after a selected amount of time.

1   55. (Previously Presented) The method according to claim 52, further comprising:

2           causing the cryptographic information to expire after a selected amount of usage.

1   56. (Previously Presented) The method according to claim 52, further comprising:

2           using a NFS protocol as the predetermined protocol.

1   57. (Previously Presented) The method according to claim 52, further comprising:

2           using as the predetermined protocol a two way communication exchange between  
3   the proxy and the file server.

1 58. (Previously Presented) An apparatus to establish identity in a file system,  
2 comprising:

3 a proxy configured to receive a file request for an indicated file sent by a client to  
4 the file system, the proxy further configured to forward the request to a file server;  
5 the file server configured to return a reply associated with the file request to the  
6 proxy, wherein the reply is configured to include a file handle;

7 the proxy further configured to insert a cryptographic information into the file  
8 handle; and

9 the proxy further configured to send the file handle with the cryptographic  
10 information inserted in the file handle to the client, the cryptographic information  
11 configured to be used in further requests to identify the client and the indicated file.

1 59. (Previously Presented) The apparatus as in claim 58, further comprising:

2 the proxy further configured to receive, by the client, a second request, the second  
3 file request to include the cryptographic information in a second file handle sent with the  
4 second request;

5 the proxy further configured to identify, in response to the cryptographic  
6 information, the client as having a permission to submit the second file request;

7 the proxy further configured to send the second request to the file server and not  
8 to send the cryptographic information with the second file handle to the file server; and

9 the proxy further configured to receive a further reply from the file server, and the  
10 proxy to send the further reply to the client.

1 60. (Previously Presented) The apparatus of claim 58, further comprising:

2 the proxy further configured to use the metadata in the file handle received from  
3 the client to eliminate a need for additional communication with the file server to  
4 establish file identity.

1 61. (Previously Presented) The apparatus of claim 58, further comprising:  
2 the proxy further configured to encode the metadata in a form of a cryptographic  
3 information into the file handle, the cryptographic information configured to expire after  
4 a predetermined amount of time.

1 62. (Previously Presented) The apparatus of claim 58, further comprising:  
2 an NFS file system used as the file system.

1 63. (Previously Presented) The apparatus of claim 58, further comprising:  
2 a stateless protocol used by the file system.

1 64. (Previously Presented) An apparatus to establish identity in a file system,  
2 comprising:  
3 a proxy configured to receive a first file request sent by a client to the file  
4 system, the proxy to forward the first file request to a file server;  
5 the file server configured to return a reply associated with the first file request  
6 to the proxy;  
7 the proxy further configured to insert a cryptographic information into a file  
8 handle;  
9 the proxy further configured to send the file handle with the cryptographic  
10 information inserted in the file handle to the client, the cryptographic information  
11 configured to be used in a second file request to identify the client and the indicated  
12 file;  
13 the proxy further configured to receive, by the client, a second file request, the  
14 second file request configured to include the cryptographic information in a second  
15 file handle sent with the second file request;  
16 the proxy further configured to identify, in response to the cryptographic  
17 information, the client as having a permission to submit the second file request;

18           the proxy further configured to send the second file request to the file server  
19   and not to send the cryptographic information with the second file handle to the file  
20   server; and  
21           the proxy further configured to receive a second reply from the file server, and  
22   the proxy to send the second reply to the client.

1   65. (Previously Presented) A method for establishing identity in a file system,  
2   comprising:  
3           receiving a file request concerning an indicated file from a client, the request  
4   received by a proxy;  
5           forwarding the request from the proxy to a file server;  
6           returning a reply associated with the file request from the file server to the  
7   proxy, wherein the reply includes a file handle associated with the indicated file;  
8           inserting, by the proxy, metadata into the file handle; and  
9           sending, by the proxy, the file handle with the metadata inserted in the file  
10   handle to the client, a size of the file handle set to a sum of a length of the server file  
11   handle and a length of the proxy metadata, the metadata to be used in further requests  
12   to identify the client and the indicated file.

1   66. (Previously Presented) A method, comprising:  
2           receiving, by a proxy, a file request for a file sent from a client;  
3           forwarding the file request from the proxy to a file server;  
4           returning a reply associated with the file request from the file server to the  
5   proxy, wherein the reply includes a file handle;  
6           inserting, by the proxy, metadata into the file handle;  
7           sending, by the proxy, the file handle with the metadata inserted in the file  
8   handle to the client; and  
9           using, by the client, the metadata inserted into the file handle in a subsequent  
10   file request to identify the client and the file.

1   67. (Previously Presented) A computer apparatus, comprising:  
2       a proxy configured to receive a client file request for a file and forward the  
3   file request from the proxy to a file server;  
4       the server configured to return a reply associated with the file request, wherein  
5   the reply includes a file handle;  
6       the proxy further configured to intercept the file handle sent from the server  
7   and insert metadata into the file handle to create a modified file handle;  
8       the proxy further configured to send the modified file handle with the  
9   metadata inserted in the file handle to the client; and  
10      the proxy further configured to receive the modified file handle from the client  
11   for a second file request for the file, wherein the proxy is further configured to use the  
12   modified file handle to eliminate a need for the proxy to generate one or more  
13   additional requests to the server that would be required to access the file if the  
14   modified file handle did not include the inserted metadata.